

# **Metal/Nonmetal Courses**

## **TO ENROLL CONTACT:**

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## **BLASTING (SURFACE) (MNM)**

[EX316M]

This course discusses the characteristics and use of explosives and blasting agents. It is designed to teach blasting standards in accordance with Institute Makers of Explosives (IME) guidelines and the Code of Federal Regulations (30 CFR). The course is structured for MSHA metal/nonmetal safety and health inspectors and industry personnel.

### **Contents:**

- Definitions
- Transportation and Storage of Explosives and Blasting Agents
- Detonation Units
- Misfires
- Electric and Nonelectric Blasting Operations
- Explosives Hazards and Accidents
- Safe Blasting Principles (Work Procedures and Blast Plans)
- Initiation Systems

**Technical Coordinator: Roger Montali**

**Course Length: 3 days**

**Tuition: \$252.00**

***Dates: Offered at worksite only with a minimum of 10 attendees***

***Scheduling at Worksite Available Upon Request***

## **ELECTRICAL HAZARDS**

[EL301M]

This course is designed to provide practical methods and techniques for the identification of electrical hazards and the appropriate enforcement actions to be taken. This course is for MSHA metal/nonmetal inspection personnel with little or no electrical expertise.

### **Contents:**

- Basic Electrical Theory
- Basic Circuitry
- Grounding
- Power Distribution Systems
- Inspection of Electrical Equipment
- Regulations and Policies
- Hazard Recognition
- Citations and Orders
- Personal Safety

**NOTE: This course is not for Electrical Specialists.**

**Technical Coordinators: Larry Cook**

**Cliff Adkins**

**Course Length: 3 days**

**Tuition: \$252.00**

**Dates: *Scheduled upon request with a minimum of 10 attendees, maximum of 16***

***Scheduling at Worksite Available Upon Request***

## **FIRST RESPONDER WORKSHOP**

[GS645G]

This is a one-day workshop designed to provide MSHA personnel, the mining industry, miners' representatives, firefighters, law enforcement personnel and emergency medical personnel with information and precautions that should be taken before or while responding to an emergency at surface mines, surface areas of underground mines, and surface mining facilities.

### **Contents:**

- Emergency Response Planning
- Large Haul Truck Fires
- Structures in and Around Surface Facilities
- Use of Mine Equipment for Rescue & Fire Fighting
- Traffic Control on Mine Roadways
- First Responder Vehicle Maintenance (Brakes & Steering)

### **Hazards addressed:**

- Explosives Storage
- Surge Piles
- Draw-off Tunnels
- Fuel Storage (stationary and mobile)
- Belt Conveyors
- Electricity
- Preparation Plants and Mills
- Off Road Haul Trucks and End Loaders
- Highwalls and Highwall Mining Machines
- Chemicals and Gases Common to Mines and Facilities
- Surface Areas of Underground Mines

**Technical Coordinator: Johnnie Tyler**

**Course Length: 1 day**

**Tuition: None**

***Dates: Scheduled upon request with a minimum of 10 attendees***

## **GROUND CONTROL HAZARDS**

[RC301M]

This course will focus on the Code of Federal Regulations (30 CFR) requirements related to ground control at surface and underground metal and nonmetal mines. The course provides techniques for the recognition and correction of ground control hazards.

### **Contents:**

- Highwalls
- Stockpiles
- Basic Geology
- Rock Fixtures
- Surface Structures
- Underground Support
- Hazard Recognition
- Compliance Determination

**Technical Coordinator: Johnnie Tyler**

**Course Length: 3 days**

**Tuition: \$252.00**

**Dates: *Scheduled upon request with a minimum of 10 attendees***

## **HAULAGE (SURFACE) (MNM)**

[HL301M]

Haulage accidents have been one of the leading causes of fatal accidents for several years at our Nation's surface mines. This course teaches how to recognize the hazards that may exist in surface haulage.

### **Contents:**

- Compliance Determination of 30 CFR Parts 56/57.9000 and 56/57.14000
- Inspection Procedures for Surface Mining Equipment
- Use of Signs and Traffic Control on Mine Property
- Haul Road Design
- Brake Systems
- New Technology (Video Cameras)
- Rollover Protective Structures (ROPS)
- Falling Object Protective Structures (FOPS)
- Tire and Rim Safety
- Overview of Fatal Accidents

**Technical Coordinator: Johnnie Tyler**

**Course Length: 3 days**

**Tuition: \$252.00**

**Dates: *Scheduled upon request with a minimum of 10 attendees***

## **MINE HOIST AND ELEVATOR INSPECTION PROGRAM TRAINING**

### **[HS606G]**

This training module covers the inspection of mine hoist and elevators and the impact of the mine environment on critical hoist and elevator components. An emphasis will be made also on Mechanical Escape Facilities. It will enable the student to perform basic mine hoist and elevator inspections, focusing on critical safety concerns, including those identified in recent mine accidents. The material will be correlated to the applicable sections of 30 CFR, the ASME A17 Elevator Code and variety of information pertaining to wire ropes.

During the hands-on time, the student will be taught the proper way to measure a wire rope, when it is required, locations of measurements and the “out of service” criteria for both wire ropes and their terminations. This course is for MSHA coal and metal/nonmetal mine safety and health inspectors and industry personnel.

#### **Contents:**

- Wire Rope Technology
- Terminations and Attachments
- Removal Criteria According to 30 CFR
- A Review of the ASME A17 Elevator Code
- Hazard Recognition
- Inspection Procedure
- Citation and Order Writing

**Technical Coordinator: Cliff Adkins**

**Course Length: 3 days**

**Tuition: \$252.00**

**Dates: *Scheduled upon request with a minimum of 10 attendees***



**TAILINGS DAM AND WASTE PILE INSPECTION – METAL/NONMETAL**  
**[IM301M]**

This course will introduce the student to the general safety considerations for the design, construction, maintenance, and inspection of dams and waste piles.

**Contents:**

- Typical Geotechnical Investigations
- Foundation Analysis
- Breakthrough Potential Analysis
- Stability Analysis and Safety Factors
- Hydrologic and Hydraulic Considerations
- Construction Monitoring
- Identification of Deficiencies
- General Methods of Remediation
- Applicable Regulations

**Technical Coordinator: Jared Adkins**

**Course Length: 3 days**

**Tuition: \$252.00**

**Dates: *Scheduled upon request with a minimum of 10 attendees***

## **UNDERGROUND VENTILATION FOR METAL AND NONMETAL MINES**

[VN303N]

This course is designed to assist metal/nonmetal miners in the recognition and evaluation of health hazards and effective ventilation methods to eliminate these hazards.

### **Contents:**

- Airborne Contaminants
- Sampling and Detecting Devices
- Confined Spaces
- Hazard Controls
- Mine Maps
- Recognition of Areas That May Have Poor Air Quality
- Measuring Air Quantities
- Review of Ventilation Regulations

**Technical Coordinators: Jonah Pritt  
Terry Phillips**

**Course Length: 2 days**

**Tuition: \$168.00**

**Dates: *Scheduled upon request with a minimum of 10 attendees***

***Scheduling at Worksite Available Upon Request***

## **ACCIDENT PREVENTION TECHNIQUES**

[SF601G]

This course is designed for safety managers/directors, mine managers, or anyone in the mining industry involved in safety management. Several proven accident reduction techniques are covered during the three-day class.

The course begins with a discussion on the principle of multiple causation and the importance of identifying the significant contributing factors in most mining accidents. Accidents/ incidents are divided into the three levels of causation with examples of each level discussed. Discussions focus on the indirect level of causation through a technique of identifying performance problems as either skill or motivational. Unsafe conditions and unsafe work practices are addressed through job safety analysis and job observation. Stress, safety communications, and effective safety talks will be covered.

The class concludes with a health and safety survey which can identify the strengths and weaknesses of a company's health and safety program.

### **Contents:**

- Accident/Incident Analysis
- Analyzing Performance Problems
- Safety Communications/Promotion
- Developing Effective Safety Talks
- Managing Stress
- Job Safety Analysis
- Job Observation
- Accident Investigation
- Mine Safety Program Rating Procedures

**Technical Coordinator: Joe Mackowiak**

**Course Length: 3 days**

**Tuition: \$252.00**

**Dates: *Scheduled upon request with a minimum of 10 attendees, maximum of 16***

***Scheduling at Worksite Available Upon Request***

## **HAZARD COMMUNICATION (HAZCOM)**

[IH616G]

This course is designed to provide operators with information necessary to develop an effective HazCom program. It will review the requirements of 30 CFR Part 47, including identification of chemicals at the mine site, determining which chemicals are hazardous, establishing a HazCom Program, and informing miners about chemical hazards and appropriate protection measures.

### **Contents:**

- Purpose and Scope of the HazCom Standard
- Operators and Chemicals Covered
- Identification of Hazardous Chemicals
- Requirements for a HazCom Program
- Container Labels and Other Forms of Warning
- Material Safety Data Sheet (MSDS) Requirements
- HazCom Training Requirements
- Availability of HazCom Information
- Trade Secret Provisions
- Exemptions

**Technical Coordinator: Johnnie Tyler**

**Course Length: 1 day**

**Tuition: \$84.00**

**Dates: *Scheduled upon request with a minimum of 10 attendees***

***Scheduling at Worksite Available Upon Request***

**INDUSTRIAL HYGIENE: SAMPLING FOR RESPIRABLE SILICA DUST AND NOISE**  
[IH621M]

***(Offered On Site Only)***

This class, developed in cooperation with the National Stone, Sand and Gravel Association, **is to be scheduled at your worksite.** It involves two days of classroom work and a full day of on-site sampling for silica and noise. It prepares miners and mine operators to conduct ongoing sampling. Results of noise sampling are available immediately; dust samples require analysis in the laboratory, and the cost of analysis is picked up by the mine operator.

A minimum of 10 students is required; the maximum class size is 15 students.

**Contents:**

- Hazards of Silica and Noise
- Introduction to Industrial Hygiene
- Sampling Equipment and Techniques Laboratory
- Record Keeping
- Calculations
- Controls

**Technical Coordinator: Robert Cline**  
**Terry Phillips**

**Course Length: 3 days**

**Tuition: \$252.00**

**Dates: *Limited availability; to be arranged with individual operators***  
***Scheduled upon request with a minimum of 10 attendees, maximum of 15***

## **INTERMEDIATE TOXICOLOGY**

[IH606G]

This course will provide the students with a review of the uptake, distribution, metabolism, and elimination of industrial and environmental chemicals. Dose- and time-response relationships will be discussed. Toxic effects of metals, particulates, solvents, and other chemicals found in the mine environment will be examined.

### **Contents:**

- Introduction to Fundamental Concepts of Toxicology
- Review of Terminology Used in Toxicology
- Comparison of Inhalation, Ingestion, and Dermal Exposures
- Definition of Endpoints of Toxicity  
Summary of Acute Versus Chronic Toxicity
- Discussion of Toxicity Data Used to Develop Exposure Limits for Humans

**Instructor: Michelle Schaper**

**Course Length: 3 days**

**Tuition: \$252.00**

**Dates: *Scheduled upon request with a minimum of 8 attendees***

***Scheduling at Worksite Available Upon Request***

## **INTRODUCTION TO MINING**

[MS701G]

The mining industry fulfills the important function of providing society's raw materials. Increasingly, mining has become more complex, due to rapid technological changes and comprehensive regulations. This complexity coupled with the industry's rich and traditional use of unique terminology can make understanding mining difficult for persons unfamiliar with it. This course introduces participants to the broad scope of mining, and is for those with little or no mining knowledge. It will provide participants with a working understanding of the various aspects of the industry.

### **Contents:**

- Mining Terminology
- Mineral Exploration and Geology
- Description of the Different Mining Methods
- Coal Preparation and Mineral Processing

### **Health and Safety Regulations including:**

- Ground/Roof Control
- Ventilation and Dust Control
- Haulage and Hoisting
- Personal Protective Equipment
- Mapping
- Mine Examinations
- Electricity
- Explosives
- Industrial Hygiene
- 

**Technical Coordinator: Randy L. Skaggs**

**Course Length: 3 days**

**Tuition: \$252.00 Dates: July 28 - 30, 2015**

***Scheduled upon request with a minimum of 8 attendees, maximum of 15***

***Scheduling at Worksite Available Upon Request***

## **LAW/REGULATION/POLICY, CITATION/ ORDER WRITING, INSPECTION PROCEDURES [LP710G]**

This course is designed for anyone in the mining industry to gain a better understanding of enforcement procedures used to protect the health and safety of all miners. The course reviews handbooks, policy, and procedures used to enforce the Mine Acts (1977/2006) and 30 CFR (Code of Federal Regulations.) Each course will be designed for either coal or metal/nonmetal. Classroom activities and discussions will blend in with researching materials covered. A copy of the combined Mine Acts, 30 CFR, and Program Policy will be provided.

### **Contents:**

- Pre-Inspection Conference
- Inspection
- Notetaking
- Pictures
- Discussion of Violations at Issuance
- Close-Out Conference
- Determining Root Cause
- Research of Regulations/Policy/Procedures

**Technical Coordinators: John Dagner  
Brandon Ellison**

**Course Length: 3 days**

**Tuition: \$252.00**

***Dates: This course will be offered at worksites only. Attendees must schedule in advance for available dates with a minimum of 10 attendees, maximum of 20***



## **MINE ACCIDENT INVESTIGATION TECHNIQUES**

[IV601G]

This course is directed towards safety directors, managers, foremen, union safety committee persons, or mining industry (metal/nonmetal or coal) individuals involved in accident investigation. Course content reviews basic guidelines, procedures, and techniques for the preparation and handling of investigations of accidents and other incidents involving health and safety in the mining industry.

Classroom activities and discussions cover reasons for accident investigations, the investigative process, data collection, accident reconstruction, and proper analysis for corrective actions.

### **Contents:**

- Overview of Accident Investigation
- Pre-Investigation Activities
- Accident Reconstruction
- Photography/Sketching
- Interviewing Techniques
- Data Collection and Evaluation
- Developing Conclusions and Recommendations

**Technical Coordinator: David Elkins**

**Course Length: 3 days**

**Tuition: \$252.00**

**Dates: February 3 - 5, 2015**

***Scheduled upon request with a minimum of 10 attendees, maximum of 16***

## **MINE CONSTRUCTION, MAINTENANCE, AND REPAIRS SAFETY**

[MS615G]

This course is designed for the mining construction industry, related support groups, mining regulatory agencies, and others that are involved with the planning, design, and application of mine construction and maintenance activities.

### **Contents:**

- Accident Analysis and Prevention
- Effective Work Area Examinations
- Mobile Equipment Examinations
- Fall Prevention
- Basic Crane Safety
- Material Storage and Handling
- Conveyor Belt Safety
- Confined Space Safety
- Wire Ropes and Slings
- Surface Installations
- 

**Technical Coordinators: Johnnie Tyler**  
**Roger Montali**

**Course Length: 2 days**

**Tuition: \$168.00**

**Dates: *Scheduled upon request with a minimum of 10 attendees***

***Scheduling at Worksite Available Upon Request***

## **MINE RESCUE TRAINING**

[ME601G]

This course is designed for mine rescue teams and mining industry personnel who may be associated with responding to mine emergencies, such as mine fires, explosions, and inundations. The major part of the training involves participation in exercises in the Mine Simulation Laboratory.

### **Contents:**

- Mine Emergency Response Overview
- Mine Emergency Operations
- Mine Emergency Personnel
- Mine Emergency Communications and Decision Making
- Mine Emergency Practices and Procedures
- Mine Emergency Rescue and Recovery Strategy
- Tactical Implementation of Operations

**Technical Coordinator: Mack Wright**

**Course Length: 1 day**

**Tuition: \$84.00\***

**Dates: *Scheduled upon request with  
a minimum of 6 attendees***

\* Tuition may be waived for mine rescue team members participating in team training activities, up to ten (10) days per calendar year.

***Scheduling at Worksite Available Upon Request***

## **ROOT CAUSE ANALYSIS WORKSHOP**

[SF602G]

The purpose of the Root Cause Analysis Workshop is to begin action toward reducing violations, accidents, and incidents at a mining operation. Root Cause Analysis recognizes that violations, accidents, and incidents are an indicator of a breakdown which allows these occurrences to happen. This method will result in a professional approach to accident prevention, and can act as a training mechanism for workers and mine operators.

Class activities will involve citations and orders issued during an inspection and the incidents and/or accidents that a mine has encountered to initiate a process of analysis that will start an inquiry into questions such as:

- What is causing these violations, accidents, and incidents to occur at the mining operation?
- Why does the mine have the same type of violations at each inspection?
- Why does the mine continue to have the same kind of accidents and incidents?
- What can be done to eliminate the violations, accidents, and incidents at this mine?

**Technical Coordinator: Joe Mackowiak**

**Course Length: 1 day**

**Tuition: \$84.00**

***Dates: Scheduled upon request with a minimum of 10 attendees***

***Scheduling at Worksite Available Upon Request***

## **BLASTING SEMINAR**

[EX524G]

This seminar is designed for company managers, blasting engineers, blasters, state and Federal mine safety and health inspectors (coal and metal/nonmetal), and others involved with the planning, design, and the use of explosives in the mining industry. The most recent blasting techniques, trends, and developments will be discussed. Participants will have the opportunity to share ideas in small group sessions.

### **Contents:**

- Vibration Analysis/Seismographs/Efficient Blasting Techniques
- Storage of Explosives
- Handling and Use of Explosives
- Silica Dust and Toxic Gas Hazards in Blasting
- Blasting Agents and Emulsions

**Technical Coordinator: Kevin Malay**

**Course Length: 2 days**

**Tuition: None**

**Dates: January 21 - 22, 2015**

## **SURFACE HAULAGE WORKSHOP**

[HL502G1]

This workshop brings together representatives of the mining industry and others that are involved with the planning, design, and use of surface mine haulage equipment and/or systems. The seminar will provide an opportunity for the participants to exchange information and observe firsthand new technology, equipment, and innovations that are being used in the mining industry. Industry and other technical presenters will provide presentations, exhibits, and equipment displays that allow the participants to interact in small groups with the presenters and each other.

### **Contents:**

- Equipment Brake Systems
- Equipment Safety Instructions
- Tire Care and Maintenance
- Crane Safety
- Solutions to Mobile Equipment Blind Spots
- Dump Point Safety
- Diesel-Electric Equipment
- Fire Suppression on Haulage Equipment
- Haul Roads – Keys to Accident Prevention
- Hazards and Accident Prevention in Belt Conveyor Operations
- New Automation Technologies – Conveyor, Plants, Mills
- Safe Handling and Transport of Bulk Blasting Agents
- Safety Aspects of Mounting/Demounting Tires
- Haul Road Design

**Technical Coordinator: Roger Montali**

**Course Length: 2 days**

**Tuition: None**

**Dates: August 25 - 26, 2015**

## **TRAM/NATIONAL MINE INSTRUCTORS SEMINAR**

[GS501G]

This seminar provides opportunities for health and safety trainers to improve their training programs with new materials and new ideas. The seminar will also include an exhibit of training materials developed by MSHA, state grants recipients, and the mining industry. Small workshops allow participants to interact with workshop leaders and other participants.

### **Contents:**

- Innovative Instructional Techniques
- Instructional Technology and Computer Applications
- Underground Mine Safety (Metal/Nonmetal and Coal Topics)
- Surface Mine Safety (Metal/Nonmetal and Coal Topics)
- General Safety
- Health
- Ergonomics
- Supervisory Issues

Another feature of the seminar is the Training Materials Competition. Health and safety training materials entered in the competition will be judged and winners will be announced at the Seminar. All materials entered in the competition will be displayed.

**Technical Coordinator: Robert Glatter**

**Course Length: 2½ days**

**Tuition: None**

**Dates: October 13 - 15, 2015**

## **WESTERN BLASTING SEMINAR**

[EX601G14]

This seminar is designed for company managers, blasting engineers, blasters, state and Federal mine safety and health inspectors (coal and metal/nonmetal), and others involved with the planning, design, and the use of explosives in the mining industry. The most recent blasting techniques, trends, and developments will be discussed. Participants will have the opportunity to share ideas in small group sessions.

### **Contents:**

- Vibration Analysis/Seismographs/Efficient Blasting Techniques
- Storage of Explosives
- Handling and Use of Explosives
- Silica Dust and Toxic Gas Hazards in Blasting
- Blasting Agents and Emulsions

**Technical Coordinator: Kevin Malay**

**Course Length: 2 days**

**Tuition: None**

**Dates: Summer 2015**